CLAIMS

1. A rotary fluid machine comprising a first rotation mechanism (**2F**) and a second rotation mechanism (**2S**), each of which including:

a cylinder (**21**) having an annular cylinder chamber (**50**);

an annular piston (**22**) which is contained in the cylinder chamber (**50**) to be eccentric to the cylinder (**21**) and divides the cylinder chamber (**50**) into an outer working chamber (**51**) and an inner working chamber (**52**); and

a blade (**23**) which is arranged in the cylinder chamber (**50**) to divide each of the working chambers (**51**, **52**) into a high pressure region and a low pressure region, the piston (**22**) and the cylinder (**21**) serving as co-operating parts and any one of the piston (**22**) and the cylinder (**21**) being stationary and the other being moving such that the moving co-operating part rotates about the stationary co-operating part, wherein

the first rotation mechanism (**2F**) and the second rotation mechanism (**2S**) are arranged to be adjacent to each other with a partition plate (**2c**) sandwiched therebetween and

the two moving co-operating parts (**21**) or the two stationary co-operating parts (**22**) of the first rotation mechanism (**2F**) and the second rotation mechanism (**2S**) are arranged such that one of the co-operating parts is provided at one side of the end plate (**2c**) and the other is provided at the other side of the end plate (**2c**).

2. The rotary fluid machine according to claim 1, wherein

the inner working chambers (**52**) of the cylinder chambers (**50**) of the first rotation mechanism (**2F**) and the second rotation mechanism (**2S**) serve as low-stage compression chambers and

the outer working chambers (**51**) of the cylinder chambers (**50**) of the first rotation mechanism (**2F**) and the second rotation mechanism (**2S**) serve as high-stage compression

chambers.

3. The rotary fluid machine according to claim 1, wherein

the outer working chambers (**51**) of the cylinder chambers (**50**) of the first rotation mechanism (**2F**) and the second rotation mechanism (**2S**) serve as compression chambers and

the inner working chambers (**52**) of the cylinder chambers (**50**) of the first rotation mechanism (**2F**) and the second rotation mechanism (**2S**) serve as expansion chambers.

4. The rotary fluid machine according to claim 1, wherein

the partition plate (**2c**) serves as the end plates (**26**) of the co-operating parts (**21**) of the first rotation mechanism (**2F**) and the second rotation mechanism (**2S**).

5. The rotary fluid machine according to claim 1, wherein

the co-operating part (**21**) of the first rotation mechanism (**2F**) and the co-operating part (**21**) of the second rotation mechanism (**2S**) adjacent to the first rotation mechanism (**2F**) have individual end plates (**26**), and

the partition plate (**2c**) is formed of the end plates (**26**) of the co-operating parts (**21**) of the first and second rotation mechanisms (**2F, 2S**).

6. The rotary fluid machine according to claim 1, wherein

the moving co-operating parts (**21**) of the first and second rotation mechanisms (**2F, 2S**) are connected to a drive shaft (**33**) and

each of the first rotation mechanism (**2F**) and the second rotation mechanism (**2S**) is provided with a compliance mechanism (**60**) for adjusting the position of the co-operating parts (**21, 22**) in the axial direction of the drive shaft (**33**).

7. The rotary fluid machine according to claim 1, wherein

the moving co-operating parts (**21**) of the first and second rotation mechanisms (**2F**, **2S**) are connected to a drive shaft (**33**) and

each of the first rotation mechanism (**2F**) and the second rotation mechanism (**2S**) is provided with a compliance mechanism (**60**) for adjusting the position of the co-operating parts (**21**) in the direction orthogonal to the axial direction of the drive shaft (**33**).

8. The rotary fluid machine according to claim 4, wherein

the moving co-operating parts (**21**) of the first and second rotation mechanisms (**2F**, **2S**) are connected to a drive shaft (**33**) and

a balance weight (**75**) is provided at part of the drive shaft (**33**) located between the end plates (**26**) of the co-operating parts of the first rotation mechanism (**2F**) and the second rotation mechanism (**2S**) adjacent to each other.

9. The rotary fluid machine according to claim 1, wherein

the first rotation mechanism (**2F**) and the second rotation mechanism (**2S**) are configured to rotate with a 90° phase difference from each other.

10. The rotary fluid machine according to claim 1, wherein

in each of the first and second rotation mechanisms (**2F**, **2S**), part of the annular piston (**22**) is cut off such that the piston (**22**) is C-shaped,

the blade (**23**) extends from the inner wall surface to the outer wall surface of the cylinder chamber (**50**) and passes through the cut-off portion of the piston (**22**) and

a swing bushing is provided in the cut-off portion of the piston (**22**) to contact the piston (**22**) and the blade (**23**) via the surfaces thereof such that the blade (**23**) freely reciprocates and the blade (**23**) and the piston (**22**) make relative swings.